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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/619,868 | 07/15/2003 | Peter Frank | 2105-00020 | 7775 |
| 26753 | 7590 | 10/08/2004 | EXAMINER | |
| ANDRUS, SCEALES, STARKE & SAWALL, LLP 100 EAST WISCONSIN AVENUE, SUITE 1100 MILWAUKEE, WI 53202 | | | CYGAN, MICHAEL T | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2855 | |

DATE MAILED: 10/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/619,868

Applicant(s)

FRANK, PETER

Examiner

Michael Cygan

Art Unit

2855

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,7-9,11-15 and 17-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,7-9,11,13-15,17 and 19 is/are rejected.
- 7) ☒ Claim(s) 12 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 13 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Baker (GB 2,029,005). Baker discloses the claimed invention, a level detector comprising transparent housing containing a plurality of light emitters and a plurality of detectors which receive internally reflected light from the emitters via the housing and through a control system determine liquid level, where each detector can receive light from multiple emitters and each emitter can send light to multiple detectors; where the readings of the detectors are based inherently on a difference between ambient (background) current and the increased current upon light reception; and where multiple sensors are operable to be checked for indication of immersion; see page 1, line 65 through page 2, line 27 and Figures 1-4.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (GB 2,029,005) in view of Lee (US 5,274,245). Baker teaches a level detector comprising transparent housing containing a plurality of light emitters and a plurality of detectors which receive internally reflected light from the emitters via the housing and through a control system determine liquid level, where each detector can receive light from multiple emitters and each emitter can send light to multiple detectors; where the readings of the detectors are based inherently on a difference between ambient (background) current and the increased current upon light reception; and where multiple sensors are operable to be checked for indication of immersion; see page 1, line 65 through page 2, line 27 and Figures 1-4. Baker teaches the claimed invention except for a circuit discriminating upper and lower emitters. Lee teaches a circuit discriminating upper and lower emitters to identify liquid level; see abstract; Figures 1-2; columns 2-4. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a circuit as taught by Lee in the invention taught by Baker to identify liquid level, since this has the advantage of being unresponsive to ambient light as well as being highly sensitive.

3. Claims 8, 9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (GB 2,029,005) in view of Lee (US 5,274,245) as applied to claim 7, further in view of Smith (US 4,956,560). Baker teaches the claimed invention except for the use of a calibration. Smith teaches the use of calibration of light sensors in a liquid level system; see column 6 line 68 through column 7 line 10. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a calibration as taught by Smith in the invention of Baker to calibrate the light emitter/reception paths, since this allows quick fill level judgments to be made automatically.
4. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (GB 2,029,005) in view of Lee (US 5,274,245) as applied to claim 7, further in view of Hastbacka (US 4,051,726). Baker teaches the claimed invention except for the use of a straight housing profile. Hastbacka teaches a straight housing profile in an internal reflection optical level sensor; see Figure 2. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a straight housing profile as taught by Hastbacka in the invention of Baker to calibrate the light emitter/reception paths, since this is stated in the abstract of Hastbacka to be a geometry causing total internal reflection when above liquid level and minimize internal reflection when immersed in the liquid.

Allowable Subject Matter

5. Claims 12 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
6. The following is a statement of reasons for the indication of allowable subject matter: the prior art neither discloses nor fairly teaches a level detector having the claimed structure and operable to determine dirtiness of part of the sensor using calibration data, ambient reading, and operational reading.

Response to Arguments

7. Applicant's arguments with respect to claims 1, 2, 14, and 15 have been considered but are moot in view of the new ground(s) of rejection.
8. With respect to claims 7-9 and 13, applicant's response appears to show a misunderstanding of the technology. It is not true that no readings are being taken when no light reaches the detector. It is, in fact, necessary that this occur. When the light is emitted, the light is either internally reflected to the detector (indicating liquid at the level of the emitter/detector) or externally transmitted and not returning to the detector (indicating no liquid at the level of the emitter/detector). In the latter case, the reading of the detector (when

no light from the emitter is reflected) is a reading of the ambient light background. It is, of course, necessary that there be a measurable difference between ambient and reflection readings, and thus inherent that the level detection inherently is dependent on the relationship between ambient and reflected detector signals.

9. With further respect to claims 13 and 19, the circuit is operable (should one desire to perform such a method of operation) to check any or all of the sensors, as Baker discloses checking all sensors sequentially. These claims are in the apparatus statutory class; therefore, method limitations are only considered to have patentable weight in that the apparatus must be capable of performing such methods.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cygan whose telephone number is (571) 272-2175. The examiner can normally be reached on 8:30-6 M-Th, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


MICHAEL CYGAN, PH.D.
PRIMARY EXAMINER